

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method comprising predicting when to generate a bus request based on either unused bus cycles that were granted to a requestor or a number of bus transactions utilized by the requestor ~~bus usage efficiency and bus bandwidth usage~~.

2. (Currently Amended) A method of predicting when to generate a bus request based on bus-usage efficiency and bus-bandwidth usage ~~The method of claim 1 further~~ comprising:

generating a bus-usage efficiency indicator by a requestor based on unused bus cycles that were granted to the requestor; and

generating a bus-bandwidth usage indicator by the requestor based on a number of bus transactions utilized by the requestor.

3. (Original) The method of claim 1 further comprising generating the bus request ahead-of-time based on the predicting.

4. (Original) The method of claim 3 further comprising receiving a bus-activity indicator from a bus arbiter indicating system bus activity during a prior system-bus observation window, and

wherein predicting further comprises predicting when to generate the bus request ahead-of-time based on the bus-activity indicator.

5. (Currently Amended) A method comprising:
predicting when to generate a bus request based on bus-usage efficiency and bus-bandwidth usage;

generating the bus request ahead-of-time based on the predicting; and
receiving a bus-activity indicator from a bus arbiter indicating system bus activity during a prior system-bus observation window,

wherein predicting further comprises predicting when to generate the bus request ahead-of-time based on the bus-activity indicator, and

~~The method of claim 4~~ wherein when the bus-activity indicator indicates that the system bus is not busy, the method further comprises engaging in full speculation to generate the bus request ahead-of-time at a maximum predetermined number of bus cycles.

6. (Original) The method of claim 4 wherein when the bus-activity indicator indicates that the system bus is busy, predicting comprises predicting how early to generate the bus request ahead-of-time based on the bus-activity indicator, a bus-usage efficiency indicator and a bus-bandwidth usage indicator.

7. (Currently Amended) A method comprising:
predicting when to generate a bus request based on bus-usage efficiency and bus-bandwidth usage;
generating the bus request ahead-of-time based on the predicting; and
receiving a bus-activity indicator from a bus arbiter indicating system bus activity during a prior system-bus observation window,
wherein predicting further comprises predicting when to generate the bus request ahead-of-time based on the bus-activity indicator,
wherein when the bus-activity indicator indicates that the system bus is busy, predicting comprises predicting how early to generate the bus request ahead-of-time based on the bus-activity indicator, a bus-usage efficiency indicator and a bus-bandwidth usage indicator, and

~~The method of claim 6~~ wherein predicting further comprises predicting when to generate the bus request based on one of a plurality of speculation states at least initially determined by the bus-activity indicator, and the method further comprises transitioning among the speculation states based on the bus-usage efficiency indicator and the bus-bandwidth usage indicator.

8. (Currently Amended) A method comprising:
predicting when to generate a bus request based on bus-usage efficiency and bus-bandwidth usage;

generating the bus request ahead-of-time based on the predicting; and
receiving a bus-activity indicator from a bus arbiter indicating system bus activity during
a prior system-bus observation window,

wherein predicting further comprises predicting when to generate the bus request ahead-
of-time based on the bus-activity indicator, and

~~The method of claim 4~~ wherein generating further comprises generating the bus request a number of bus cycles ahead-of-time based on an imminence level of a transaction for the bus request.

9. (Currently Amended) The method of claim 1 wherein at least one of a plurality of requestors generate bus requests ahead-of-time based on the predicting, wherein the requestors comprise one or more of a memory controller, a direct memory access unit, a network interface, a digital signal processors, a network controller, a wireless local area network controller, a signal processor, a floating-point unit, ~~an~~ application accelerators, or a data acquisition device.

10. (Currently Amended) A method comprising:
predicting when to generate a bus request based on bus-usage efficiency and bus-
bandwidth usage;
generating the bus request ahead-of-time based on the predicting; and
receiving a bus-activity indicator from a bus arbiter indicating system bus activity during
a prior system-bus observation window,

wherein predicting further comprises predicting when to generate the bus request ahead-
of-time based on the bus-activity indicator, and

~~The method of claim 4~~ wherein the bus-activity indicator is generated by a bus arbiter and indicates whether or not the system bus is busy based on a number ~~of~~ of requests during a system-bus observation window, the system-bus observation window comprising a prior predetermined number of system-bus cycles.

11. (Currently Amended) A method comprising:

predicting when to generate a bus request based on bus-usage efficiency and bus-bandwidth usage;

generating the bus request ahead-of-time based on the predicting; and
receiving a bus-activity indicator from a bus arbiter indicating system bus activity during a prior system-bus observation window,

wherein predicting further comprises predicting when to generate the bus request ahead-of-time based on the bus-activity indicator, and

~~The method of claim 4~~ wherein the bus-activity indicator is generated by a bus arbiter and comprises a two-bit value broadcasted by the bus arbiter to one or more requestors of the system.

12. (Currently Amended) A memory controller comprising:

~~first logic circuitry to generate a bus-usage efficiency indicator and a bus-bandwidth usage indicator~~ one or more indicators based on either unused bus cycles that were granted to a requestor or a number of bus transactions utilized by the requestor; and

~~second logic circuitry to predict when to generate a bus request based on one of the indicators the bus-usage efficiency indicator and the bus-bandwidth usage indicator.~~

13. (Currently Amended) A memory controller comprising:

first logic circuitry to generate a bus-usage efficiency indicator and a bus-bandwidth usage indicator; and

second logic circuitry to predict when to generate a bus request based on the bus-usage efficiency indicator and the bus-bandwidth usage indicator,

~~The memory controller of claim 12~~ wherein the first logic circuitry generates the bus-usage efficiency indicator based on unused bus cycles that were granted to the memory controller during a prior observation window, and generates the bus-bandwidth usage indicator based on a number of bus transactions utilized by the memory controller during the prior observation window.

14. (Original) The memory controller of claim 13 further comprising third logic circuitry to generate the bus request ahead-of-time based on the prediction.

15. (Original) The memory controller of claim 14 wherein the second logic circuitry receives a bus-activity indicator from a bus arbiter indicating system bus activity during a system-bus observation window and predicts when to generate the bus request ahead-of-time based on the bus-activity indicator.

16. (Original) The memory controller of claim 15 wherein when the bus-activity indicator indicates that the system bus is not busy, the memory controller engages in full speculation and generates the bus request ahead-of-time by a maximum predetermined number of bus cycles.

17. (Original) The memory controller of claim 15 wherein when the bus-activity indicator indicates that the system bus is busy, the second logic circuitry predicts how early to generate the bus request based on the bus-activity indicator, the bus-usage efficiency indicator and the bus-bandwidth usage indicator.

18. (Original) The memory controller of claim 17 wherein the second logic circuitry predicts when to generate the bus request based on one of a plurality of speculation states at least initially determined by the bus-activity indicator, the memory controller to transition among the speculation states based on the bus-usage efficiency indicator and the bus-bandwidth usage indicator.

19. (Original) The memory controller of claim 15 wherein the second logic circuitry determines a number of bus cycles to generate the bus request ahead-of-time further based on an imminence level of a transaction for which the bus request is to be generated.

20. (Currently Amended) A processing system comprising:
an arbiter to generate a bus-activity indicator indicating activity of a system bus activity during a prior system-bus observation window; and

a memory controller to predict when to generate a bus request based on the bus-activity indicator and based on either unused bus cycles that were granted to a requestor or a number of bus transactions utilized by the requestor, a bus-usage efficiency indicator and a bus-bandwidth usage indicator and the memory controller to generate the bus request ahead-of-time based on the prediction; ~~and~~

~~synchronous memory coupled to the memory controller.~~

21. (Currently Amended) A processing system comprising:
an arbiter to generate a bus-activity indicator indicating activity of a system bus activity during a prior system-bus observation window;

a memory controller to predict when to generate a bus request based on the bus-activity indicator, a bus-usage efficiency indicator and a bus-bandwidth usage indicator and to generate the bus request ahead-of-time based on the prediction; and

synchronous memory coupled to the memory controller.

~~The processing system of claim 20~~ wherein the memory controller generates the bus-usage efficiency indicator based on unused bus cycles that were granted to the memory controller, and generates the bus-bandwidth usage indicator based on bus transactions utilized by the memory controller during a prior observation window.

22. (Original) The processing system of claim 21 wherein when the bus-activity indicator indicates that the system bus is not busy, the memory controller engages in full speculation to generate the bus request ahead-of-time at a maximum predetermined number of bus cycles, and

wherein when the bus-activity indicator indicates that the system bus is busy, the memory controller predicts how early to generate the bus request based on the bus-activity indicator, the bus-usage efficiency indicator and the bus-bandwidth usage indicator.

23. (Original) The processing system of claim 22 wherein the memory controller predicts when to generate the bus request based on one of a plurality of speculation states at least initially determined by the bus-activity indicator, the memory controller transitions among the

speculation states based on the bus-usage efficiency indicator and the bus-bandwidth usage indicator.

24. (Original) A wireless communication device comprising:
a wireless network interface to provide wireless communications within a wireless network, the network interface coupled to a system bus; and
a requestor to predict when to generate a bus request for use of the system bus based on a bus-activity indicator, a bus-usage efficiency indicator and a bus-bandwidth usage indicator and to generate the bus request ahead-of-time based on the prediction.

25. (Currently Amended) The device of claim 24 further comprising an antenna coupled to the network interface to receive and transmit the wireless communications with the network, and

wherein the requestor generates the bus-usage efficiency indicator based on unused bus cycles that were granted to the requestor, and generates the bus-bandwidth usage indicator based on on bus transactions utilized by the requestor during a prior observation window,

wherein the device further comprises an arbiter to generate the bus-activity indicator indicating activity of the system bus activity during a prior system-bus observation window.

26. (Original) The device of claim 25 wherein when the bus-activity indicator indicates that the system bus is not busy, the requestor engages in full speculation to generate the bus request ahead-of-time at a maximum predetermined number of bus cycles,

wherein when the bus-activity indicator indicates that the system bus is busy, the requestor predicts how early to generate the bus request based on the bus-activity indicator, the bus-usage efficiency indicator and the bus-bandwidth usage indicator, and

wherein the requestor predicts when to generate the bus request based on one of a plurality of speculation states at least initially determined by the bus-activity indicator, the requestor transitions among the speculation states based on the bus-usage efficiency indicator and the bus-bandwidth usage indicator.

27. (Original) The device of claim 25 wherein the requestor and the wireless network interface are two of a plurality of requestors desiring access to one or more shared resources, wherein the wireless network interface predicts when to generate a bus request based on the bus-activity indicator, a bus-usage efficiency indicator and a bus-bandwidth usage indicator, and wherein the wireless network interface generates the bus request ahead-of-time based on the prediction.

28. (Currently Amended) An article comprising a storage medium having stored thereon instructions, that when executed by a computing platform, result in predicting when to generate a bus request based on either unused bus cycles that were granted to a requestor or a number of bus transactions utilized by the requestor ~~bus-usage efficiency and bus-bandwidth usage~~.

29. (Currently Amended) An article comprising a storage medium having stored thereon instructions, that when executed by a computing platform, result in predicting when to generate a bus request based on bus-usage efficiency and bus-bandwidth usage.

~~The article of claim 28~~ wherein the instructions, when further executed by the computing platform result in:

generating a bus-usage efficiency indicator by a requestor based on unused bus cycles that were granted to the requestor; and

generating a bus-bandwidth usage indicator by the requestor based on a number of bus transactions utilized by the requestor.

30. (Original) The article of claim 29 wherein the instructions, when further executed by the computing platform result in:

receiving a bus-activity indicator from a bus arbiter indicating system bus activity during a prior system-bus observation window, and

wherein predicting further comprises predicting when to generate the bus request ahead-of-time based on the bus-activity indicator,

wherein when the bus-activity indicator indicates that the system bus is not busy, the instructions result in engaging in full speculation to generate the bus request ahead-of-time at a maximum predetermined number of bus cycles.